COMMUNICATIONS.

Ashville, (N.C.) October 14, 1848.

Gentlemen: As you have recently been publishing a series of letters in relation to that portion of the Alleghany range which is situated in North Carolina, you may, perhaps, find matter of interest in the subject of this communication. My purpose in making it is not only to present to the consideration of those learned or curious in geology facts singular and interesting in themselves, but also, by means of your widely disseminated paper, to stimulate an inquiry as to whether similar phenomena have been observed in any other parts of the Alleghany range.

A number of persons had stated to me that at different periods, within the recollection of persons now living, a portion of a certain mountain in Haywood county had been violently agitated and broken to pieces. The first of these shocks remembered by any person whom I have seen occurred just prior to the last war with England, in the year 1811 or 1812. Since then some half a dozen or more have been noticed. The latest occurred something more than three years ago, on a clear summer morning. These shocks have usually occurred, or at least been more frequently observed, in calm weather. They have generally been heard distinctly by persons in the town of Waynesville, some twenty miles off. The sound is described as resembling the rumbling of distant thunder, but no shaking of the earth is felt at that distance. In the immediate vicinity of the mountain, and for four or five miles around, this sound is accompanied by a slight trembling of the earth, which continues as long as the sound lasts—that is, for one or two minutes. After each of these shocks the mountain was found to be freshly rent and broken in various places.

Having an opportunity afforded me a few days since I paid a visit to the locality, and devoted a few hours to a hurried examination. It is situated in the northeastern section of Haywood county, near the head of Fine's creek. The bed of the little creek at the mountain is probably elevated some twenty six or seven hundred feet above the level of the ocean. The valley of the French B... Warm Springs, some ... is twelve hundred feet lower. They are separated, however, by a mountain ridge of more than four thousand feet elevation above the sea, and there are high mountains in all directions around the locality in question. The immediate object of interest is the western termination of a mountain ridge nearly half a mile to the east of the house of Mr. Matthew Rogers. The top of this ridge, at the place where it has been recently convulsed, is some three or four hundred feet above the creek, at its western extremity, but it rises rapidly for some distance as it goes off to the eastward towards the higher mountain range. The northern side of this ridge I had not time to examine, but the marks of violence are observable at the top of the ridge, and extend in a direction nearly due south, down the side of the mountain four or five hundred yards, to a little branch; thence across it, over a flat or gentle slope, and up the side of the next ridge as far as I went, being for three or four hundred yards. The tract of ground examined by me was perhaps half a mile in length, from north to south. The breadth of the surface subjected to violence was nowhere more than two hundred yards, and generally rather less than one hundred. Along this space the ground has been rent in various places. The fissures or cracks most frequently run in a northern and southern direction, and towards the tops of the mountains, but they are often at right angles to these, and in fact some may be found in all directions. While some of them are so narrow as to be barely visible, others are three or four feet in width. The annual falling of the leaves and the washing of the rains has filled them so that at no place are they more than five or six feet in depth. Along this tract all the large trees have been thrown down, and are lying in various directions, some of them six feet in diameter. One large poplar, which stood directly over one of the fissures, was cleft open, and one-half of the trunk, to the height of more than twenty feet, is still standing. Though the fissure, which passed directly under its centre, is not more than an inch in width, it may be observed for nearly a hundred yards. All the roots of trees which crossed the line's fracture are broken. The rocks are also cloven by these lines. The top of the ridge, which seems originally to have been an entire mass of granite, is broken in places. Not only have those masses of rock, which are chiefly under ground, been cleft open, but fragments lying on the surface have been shattered. All those persons who have visited it immediately after a convulsion concur in saying that every fallen tree and rock has been moved. The smallest fragments have been thrown from their beds as though they had been lifted up. In confirmation of this statement I observed that a large block of granite, of an oblong form, which, from its size, must have weighed not less than two thousand tons, had been broken into three pieces of nearly equal size. This mass was lying loosely on the top of the ground, in a place nearly level, and there were no signs of its having rolled or slidden. The fragments were separated only a few inches, rendering it almost certain that it had been broken by a sudden shock or jar, which did not continue long enough to throw the pieces far apart.

Some parts of the surface of the earth have sunk down irregularly a few feet, other portions have been raised. There are a number of little elevations or hillocks, some of a few feet only in extent, and others twenty and thirty yards over. The largest rise at the centre to the height of eight or ten feet, and slope gradually down; some of these have been surrounded on all sides by a fissure, which is not yet entirely filled up. In some instances the trees on their sides, none of them large, are bent considerably from the perpendicular, showing that they had attained some size before the change of level took place on the surface where they grow.

The sides of the mountain generally are covered by a good vegetable mould, not particularly rocky, and sustaining trees of large size. But along the belt of convulsion the rocks are much more abundant, and there are only young trees growing, the elasticity of which enabled them to stand during the shocks.

With reference to the mineral structure of the locality, it may be remarked that that entire section seems to constitute a hypogene formation. It consists of granites, gneiss, sometimes porphyritic, hornblende rock, micaceous schists, clay slate, and various other metamorphic strata. The nearest aqueous rocks that I know of are the conglomerate sandstone and sedimentary limestone, in the vicinity of the Warm Springs, fifteen miles distant in a direct line. If any volcanic rock has been found in hundreds of miles I am not aware of it. The mountain itself bears the most indubitable marks of plutonic origin. It consists mainly of a grayish white granite, in which the felspar greatly predominates, but it is sometimes rendered dark by an excess of mica in minute black scales. This latter mineral I saw also there in small rather irregular crystals. Some portions of the rock contained, however, its three ingredients, in nearly equal proportions; the quartz, in color, frequently approaching ash gray. In several places I observed that the granite was cut vertically by veins of gray translucent quartz, of from one to six inches in thickness. There were also lying in places on the ground lumps of common opaque white quartz, intersected by narrow veins, not exceeding half an inch in thickness, of specular iron, of the highest degree of brilliancy and hardness that that mineral is capable of possessing. It may be remarked that there are, in different directions within two miles of the locality, two considerable deposites of magnetic iron ore. The only rock which I observed there possessing any appearance of stratification seems to consist of mica, hornblende, and a little felspar, in a state of intimate mixture. Having but a few hours to remain there, I do not pretend that there are not many other minerals at the locality; but I have no doubt but that the predominating character of the formation is such as I have endeavored to describe it, and I have been thus minute in order that others may be able to judge more accurately in relation to the cause of the disturbances.

Before visiting the locality I supposed that the phenomena might be produced by the giving way of some part of the base of the mountain, so as to produce a sinking or sliding of the parts; but a moment's examination was decisive on this point. It not unfrequently happens that aqueous rocks rest on beds of clay, gravel, &c., which may be removed from underneath them by the action of running water or other causes. Cavities are thus produced, and it sometimes happens that considerable bodies of secondary limestone and other sedimentary strata sink down with a violent shock. This, however, is found to be true only of such strata as are deposited from water. But at the locality under consideration the rocks are exclusively of igneous origin, and, I may add, two of the class termed *hypogene* or "*weather formed.*" For though felspar and hornblende have been found in the lower parts of some of the lavas, where the mass had been subjected to great pressure and evolved slowly, yet quartz and mica have never been found as constituents of any volcanic rock, not even in the basaltic dikes and injected traps, where there must have been a pressure equal to several hundred atmospheres. It is universally conceded by geologists that those rocks, of which these minerals constitute a principal part, have been produced at great depths in the earth where they were subjected to enormous pressure during their slow evolving and crystallization. Prior, therefore, to the denudation which has exposed these masses of granite to our view, they must have been overlaid and pressed down while in a fluid state by superincumbent strata of great thickness and vast weight. It is not probable, therefore, that any cavities could exist, nor, even if it were possible that such could be the case, is it at all likely that a granite arch which once upheld such an immense weight would in one day give way under the simple pressure of the atmosphere; or, even if we were to adopt the improbable supposition that the mass of granite composing this mountain had been formed at a great depth below the present surface of the earth, and forced up *bodily* by plutonic action, there is as little reason to believe that any cavities could exist. In fact, they are never found under granites. On looking at the surface of the ground at this place there is no appearance to indicate any general sinking of the mass. At the top of the ridge, where the fractures are observable across it, there is no variation in the slope of the surface or depression of the broken parts. Immediately below it, where the mountain has great steepness, equal at least to an inclination of forty-five degrees, where the line of fracture is parallel to the direction of the ridge, the surface is sunk suddenly ten or fifteen feet. This state of things, however, would inevitably be produced at such an inclination by the force of gravity alone, causing the parts separated by the shock to sink somewhat as they descend the mountain side. Lower down, where the steepness is not so great, the elevations much exceed the depressions. The same is true of the appearances on the south side of the branch, where the surface is almost level for several hundred yards. I think that any one surveying the whole of the disturbed ground will be brought to the conclusion that there has been a general upheaval rather than a depression, and that the irregularities now observable are due to a force acting power below, which has during the shocks unequally raised different parts of the surface. One of the earlier geologists, while this science was in its infancy, would probably have ascribed these phenomena to the presence underneath the surface of a bed of pyrites, bituminous shale, or some other substance capable of spontaneous combustion, which had taken fire from being penetrated by a stream of water or some other accidental cause. If such a combustion were to take place at a considerable depth below the surface, and should to a considerable extent heat the strata above, they would thereby be expanded and thickened so as to be forced upward. Such an expansion, though it would be less in granite than in some other strata, as shown by your fellow-townsman, Col. Totten, would nevertheless, if the heated mass were thick and the elevation of temperature considerable, be sufficient to raise the surface as much as it appears to have been elevated; such expansion, however, being necessarily from its nature very gradual, would not account for the various violent shocks nor for the irregular action at the surface. On the other hand, if the burning mass were near the surface, so as to cause explosion by means of gases generated from time to time, it is scarcely inconceivable that such gases, while escaping through fissures of the rock above, should fail to be observed, inasmuch as a great volume would be necessary to supply the requisite amount of force nor is it at all conceivable that such a state of things would not be accompanied by a sensible change of temperature at the surface. The difficulty in the way of such a supposition is greatly increased when we consider the form of the long narrow belt acted on, and from the recurrence of the sudden violent shocks after long intervals of quiet. Such a hypothesis in fact I do not regard as entitled to more respect than another one which was suggested to me at the place. As it has no other merit than that of *originality*, I should not have thought it worth repeating but for the statement of fact made in support of it. While I was observing the locality, my attention was directed to an elderly man who was gliding with a stealthy step through the forest, carrying on his left shoulder a rifle, and in his right hand a small hoe, such as the diggers of ginseng use. His glances, alternating between the distant ridges and the plants about his feet, showed that while looking for deer he was not unmindful of the wants of the inhabitants of the Celestial Empire. On my questioning him in relation to the appearances, he said that he had observed them often after the different shocks; that the appearances were changed each time at the surface; that I ought to see it just after a shock, before the rain and leaves had filled the cracks, adding that it did "not show at all now." He expressed a decided opinion that the convulsions were produced by *silver* under the surface. On my remarking that though I knew that that metal in the hands of men was an effective agent in cleaving rocks and excavating the earth, yet I had not supposed it could exert such an influence when deeply buried under ground, he stated in support of his opinion that one of his neighbors had on the north side of the mountain found a spring hot enough to boil an egg. He also added that some three years since he had seen on the mountain, two miles to the north of this one, but in the direction seemingly of the line of force, a blazing fire for several hours, rising up sometimes as high as the tops of the trees and going out suddenly for a moment at a time at frequent intervals. He declared that at the distance of a mile from where he was the brightness was sufficient to enable him to see small objects. Several other persons in the vicinity I found subsequently professed to have seen the same light from different points of view, and described it in a similar manner. As no one of them seems to have thought enough of the matter to induce him to attempt to approach the place, though some persons represented that they had subsequently found a great quantity of "cinder" at the point, the statement of fact is not perhaps entitled to more weight than the hypothesis it was intended to support.

It is probable, however, that some difficulty will attend any explanation that can be offered in relation to the phenomena at this place. We know that the elevation of the surface of the earth is at many places undergoing a change, so gradual as not to be observed at any one time. Some of the northwestern parts of Europe, for example, are experiencing a slow *upheaval* equal to five or six feet in a century, while on the coast of Greenland the *subsideral*, or depression, is such that even the ignorant inhabitants have learned that it is not prudent for them to build their huts near the edge of the water. Similar changes are observed in various other places, but they obviously bear no analogy to the facts under consideration. Again, it is well known that earthquakes from time to time agitate violently portions of the earth's surface of greater or less extent; that while one single shock has permanently raised two or three feet the coast of Chili for several hundred miles, others have elevated or depressed comparatively small spaces. It usually happens, however, that when the shock is so forcible at one point as to break the solid strata of the globe, the surrounding parts are violently agitated for a considerable distance. In the present instance, however, the shock for half a mile at least in length and for the breadth of one hundred yards, is such as to cleave a mass of granite of seemingly indefinite extent, and so quick and sudden as to displace the smallest fragments on the surface; and yet at the house of Mr. Rogers, less than half a mile distant, a slight trembling only is felt, not sufficient to excite alarm, while at the distance of a few miles, though the sound is heard, no agitation of the ground is felt. Should we adopt the view of those who maintain that all the central parts of the earth are in a state of fusion, and that violent movements of parts of the melted mass give rise to the shocks which are felt at the surface, the explanation of this and similar phenomena is still not free from difficulty. Upon the supposition that the solid crust of the globe has no greater thickness than that assumed by Humboldt, some twenty-odd miles, it would scarcely seem that such a crust, composed of rocky strata, would have the requisite degree of elasticity to propagate a violent shock to so small a surface without a greater agitation of the surrounding parts than is sometimes observed. Volcanic eruptions, however, take place through every variety of strata; but these volcanoes are rarely if ever isolated; on the contrary, not only the volcanoes now active, but such as have been in a state of rest from the earliest historic era, are distributed along certain great lines of force, or belts, the limits of which seem to have been pretty well defined by geologists. But I am not aware of there being any evidence afforded of volcanic action, either in recent or remote geological ages, within hundreds of miles of this locality. Even if such exist beneath the sea, it must be at least two hundred miles distant. If then we attribute these convulsions to the same causes which have elsewhere generated earthquakes and volcanoes, is it probable that this is the only point in the Alleghany range thus acted on? The fact that nothing else of the kind has been, as far as I know, published to the world, is by no means conclusive, since the disturbances here have not only been unnoticed by writers, but are even unknown to nine-tenths of those persons living within fifty miles of the spot. Is it then improbable that different points of the great mountain range are sensibly acted on from year to year? It is true that this may be the only locality affected. It might be supposed that there is at this place a mass of rock, separated wholly or partially from the adjoining strata, reaching to a great depth, and resting on a fluid basin, the agitation of which occasionally would give a shock to this mass. Though such be not at all probable, yet it is conceivable that such a mass might possess the requisite shape; and if at the top, instead of being a single piece, it should have a number of irregular fragments resting on it below the surface, then it might be capable of producing inequalities observable after each successive convulsion. From the form, however, of the belt acted on, as well as from other considerations, such a hypothesis is only possible, not probable. It would perhaps more readily be conceded that there was in the solid strata below an oblong opening, or wide fissure, connected with the fluid basin below, and filled either with melted lava, or more probably with elastic gas, condensed under vast pressure, so that the occasional agitations below would be propagated to the surface at this spot. Or if we suppose that steam, at a high heat, or some of the other elastic gaseous substances, should escape through fissures from the depths below, but have their course obstructed near the surface, so as to accumulate from time to time, until their force was sufficient to overpower the resistance, then a succession of periodic explosions might occur. Such a state of things would be analogous to the manner in which Mr. Lyell accounts for the Geysers, or Intermittent Hot Springs, *in Iceland*, except that the intervals between the explosions in this instance are much greater than in the other. It is easy to conceive that the shocks of some former earthquakes may have produced the requisite condition in the strata at that place.

Or, should we reject all such suppositions, it might be worth while to inquire whether this and similar phenomena may not be due to electricity? The opinion seems to have become general with men of science, that there are great currents of electricity circulating in the shell of the globe, mainly if not entirely in directions parallel to the magnetic equator. The observations and experiments of Mr. Fox have, in the opinion of a geologist so eminent as Mr. Lyell, established the fact that there are electro-magnetic currents along metalliferous veins. Taking these things to be true, it may well be that the electricity in its passage should be collected and concentrated along certain great veins. During any commotion in the great ocean of electricity, the currents along such lines, or rather where they are interrupted, might give rise to sensible shocks. The exceedingly quick, vibratory motion, often observed on such occasions, seems analogous to some of the observed effects of electricity. In the present instance the line of force appears to coincide with the direction of the magnetic needle. It is also represented that the sound accompanying the convulsions is heard more distinctly at Waynesville, twenty miles due south, than it is within two or three miles to the east or west of the locality, seeming to imply that the force may be exerted in a long line, though it is more intense at a particular point. In adverting, however, to the manner in which the phenomena observed at this place might possibly be accounted for, it is not my expectation to be able to arrive at their cause. One whose attention is mainly directed to political affairs, and who at most gets but an occasional glimpse of a book of science, ought neither to assume, nor to be expected to accomplish this. I have adopted the above mode of making suggestions as to the causes, solely to enable me to explain the facts observed in a more intelligible manner than I could do by a mere detail of the appearances and events as narrated. Perhaps those whose minds are chiefly occupied with the consideration of such subjects will find an easy solution of these phenomena. Should this letter be instrumental in eliciting information in relation to similar disturbances elsewhere in the Alleghany range, then its publication may answer some valuable purpose.

Very respectfully, yours,

T. L. CLINGMAN.

Messrs. Gales & Seaton.

TO THE EDITORS.

I send herewith a translation of a communication made by M. Le Verrier to the French Academy of Sciences, at one of its recent meetings, concerning his discovery of the planet Neptune. It is made in reply to a similar communication made a short time before (August 21) to the same body, by M. Babinet, concerning another theoretic planet, in which M. Le Verrier considers that his labors made in indicating the existence of Neptune had been disparaged and depreciated. M. Le Verrier sets forth his labors and claims fairly, and his elucidations and comparisons are plain and forcible. In addition to the instances given by him of the discrepancies existing among the determinations of modern astronomers, he might have referred to those deduced from the observations of the transit of Mercury in 1845. This is the most recent phenomenon of the kind for which the results have been collated. It had more observers, better instruments, and has presented greater discrepancies than any former one.

The subject of the discovery of Neptune has excited much interest here and elsewhere, and I doubt not but that M. Le Verrier's justification will be read with much interest by all men of science.

TIBERINUS.

November 13, 1848.

TRANSLATION FROM THE COMPTES RENDUS OF THE SITTINGS OF THE ACADEMY OF SCIENCES.

Sitting of Sept. 11, 1848.

Astronomy.—Communication concerning the planet Neptune, by M. U. J. Le Verrier.

It is now two years since I discovered the position of the planet Neptune, by means of the perturbations which it occasions in the motion of Uranus. My anxious importunities that the result of my labor should be verified by actual observation were listened to at Berlin, and on the 23d of September, 1846, they commenced at the Prussian Observatory a regular series of observations upon Neptune.

I could never have arrived at the place of this planet but by the use of indirect methods. It was impossible, therefore, that I should at once reach the precision which actual observation has subsequently attained. When it becomes necessary to use irregularities, whose values we cannot answer for within a *tenth*, it is but reasonable to suppose (as I shall be able to explain if desired) that the positions thence deduced should also be affected by a similar inaccuracy, or an error of a *tenth*. I shall nevertheless make it appear that the error of my theory is much less than a *tenth*.

It hence naturally results that all assertions to the contrary are false. Without disquieting myself above measure at the noise which the world has found it necessary to make upon this subject, I deem it my duty nevertheless to do the matter justice: for, should such an error assume for a time the place of truth, it could not fail to bring a profound discouragement among the men who devote themselves to the progress of science.

"The identity of the planet Neptune with the theoretic planet," says M. Babinet, in his notice of the 21st of August last, "is no longer admitted by any person; on account of the enormous differences which have been found to exist in regard to its mass, to the length of its revolution, its distance from the sun, its eccentricity, and even its longitude, (except for the epoch of its discovery by M. Galle, or very few years before and after.")

If I quote this phrase of the learned philosopher it is merely because it contains a summary, made with infinite care, of all the pretended difficulties. But I must be permitted not to recognise any difficulty in the gratuitous assertion *that the identity is no longer admitted by any person.* I think, after this discussion, no one will hesitate to say thus to M. Babinet:

"Let us first state precisely the question. I have determined the position of Neptune, by means of the perturbations which it produces upon Uranus. Therefore, when there are such perturbations, I am able to find directly where Neptune is; but, when these perturbations do not exist, it would be impossible to do so. Let not this be forgotten.

"Moreover, the action of one planet upon another, at any given moment, depends solely upon its situation in the heavens and its mass. Therefore the only things which I could have been able to conclude from the perturbations of Uranus while they had place, were the position in which Neptune then was, its distance from the sun, and its mass.

"Let us see how I have arrived at the determination of these three quantities

"1st. Is it true that the direction in which I have placed Neptune contains an enormous error, except for the epoch of the discovery of M. Galle, or very few years before and after? No; that is false.

"I submit to the Academy of Sciences a chart of the respective situations of Neptune, in the orbit which I had by theory assigned to it, and in the orbit which results from direct observation. The latter positions have been borrowed from Mr. Walker, so that I cannot be suspected of having done any thing to obtain a less difference between them.*

"Let us see, according to this chart, the minimum difference of my theory:

	°
In 1857	+4.0
1847	+1.0
1837	—0.7
1827	—2.0
1817	—3.1
1807	—4.5
1797	—6.6

"The result is, that during sixty five years my theory, deduced from indirect considerations, assigns to Neptune a series of positions which differ from the positions obtained by means of the direct orbit at most only a fifty-fifth part of the circumference of the circle.

"Observe that this sum is called a small number of years, though we know that Neptune has had no sensible effect upon Uranus but for twenty-five or thirty years at most. The fifty-fifth part of a circle! Behold what is termed an enormous error, when we know that the data upon which my theory was based were not certain but to a tenth nearly.

"But I do not insist upon this point, because I understand Mr. Babinet to have declared that, when he spoke of enormous errors, he had not made any calculation of their amount, and believed them to be much more considerable than they really are.

"But they say, also, that in leaving this period of sixty-five years we shall find differences of greater amount. Yes, without doubt; this results from the very nature of the question, which we cannot avoid.

"I determined, I have said, the position of Neptune by means of the perturbations which it produced upon Uranus. When there were perturbations I could say where Neptune was; but to require me to do so a long time after the disturbing action had ceased, was simply to require an impossibility, a sort of miracle.

"But in examining my chart, which I shall in a few days lay before the public, and upon which I have traced the route of Uranus, we see clearly that this planet had not been influenced by the action of Neptune but from 1812 to 1842; that is to say, only for the space of thirty years."

It has been, then, only during these thirty years that I could determine directly the position of Neptune; and nevertheless the error of my theory is only 3°.7 in 1812, at the moment when the action of Neptune, which was then only commencing, had not yet been closely determined, afterwards, in proportion as this action developed itself, the precision of my indications augmented, till finally, in 1842, when I had been able to discuss the whole action of the planet, I was not in error more than the fifth of a degree, that is one eighteen-hundredth part of the circumference, in predicting the direction in which Neptune should be seen.

"Therefore, far from reproaching my theory for having made the small error of 4°.0 in 1807, and of 6°.6 in 1797, it might rather be asked how it was possible to give with such precision the position of Neptune at epochs when it exercised no action upon Uranus? This could only be done by prolonging arbitrarily the curve, which I had obtained between 1812 and 1842, a prolongation which has been no part of my work, and which is not a legitimate determination when it has been pushed too far. During these thirty years the planet Neptune had only passed over a sixth part of its orbit; and an ellipse is very badly determined by an arc, which embraces only the sixth part of its extent.

"During the whole of the last century, from 1700 to 1812, Neptune had no action at all upon Uranus. It could have had less action upon that planet than upon Saturn, which it did not trouble. When I am desired to determine by my theory where Neptune should have been found at the middle or the commencement of the last century, it is asking nothing less than a miracle.

"I am then right in saying it is false that I have committed an enormous error in the longitude of the planet at any other epoch than that of its discovery by Galle, or a few years before or after. During the whole period in which Neptune acted upon Uranus my theory does not deviate from that deduced from direct observation more than 1-91th of the circumference. And yet it is now said that the discovery by Galle was a fortunate accident.

"In truth, it would seem from this that planets of twice the size of Uranus, yet unknown, though they shine like stars of the seventh magnitude, are spread in such large numbers through the heavens that there would be nothing surprising if in directing at hazard our finger to any point of the firmament we should have a great chance to discover one of them. And it is doubtless merely on account of their great number, and because there is no merit in discovering them, that observers disdain to pay them any attention.

"2d. Is it true that there are enormous errors relative to the distance from the sun? No, that is false.

"Figures have an eloquence of their own.

"Let us see, then, according to my chart, what are the distances from the sun, in these two orbits, for the thirty years during which Neptune exercised any influence upon Uranus:

	Distance in the predicted orbit.	Distance in the Walker orbit, after the discovery.
In 1812	32 7	30.4
In 1822	32.3	30.3
In 1832	32 6	30 2
In 1842	32.8	30.1

"How should the difference of the two theories be estimated? By referring it to the distance which it is our object to determine. When, for the purpose of striking the imagination of the public, we express this difference in leagues, (lieues de poste;) that is to say, when we refer it to the slow rate at which we crawl over the surface of our globe, we are adopting a process unworthy of an astronomer.

"But, in 1812, I made an error of only a fourteenth part in the distance; in 1822 and 1832 a sixteenth; in 1842 a thirteenth; but never of a *tenth*, to which I might nevertheless have attained without incurring censure from any one.

"The direction was even more correct than the distance. So it should have been; for, if the direction had been false, nothing could have compensated the error which would have thence resulted in the attraction which Neptune exercises upon Uranus. But if we should place a planet a little too far off in a given direction, the error resulting from that cause in the quantity of attraction may be immediately destroyed by making the planet a little larger. This is precisely what happened. I have placed Neptune a little too far off, but have made it also something too large. I might have placed it at all the intermediate places between the two orbits, or even placed it nearer by diminishing its size.

"But what am I saying? I have made Neptune a little too large! I forgot that such was the third grief. Let us see, meanwhile.

"3d. Is it true that the theoretic mass of Neptune differs from the mass deduced from the observation of the satellite to such an extent as to form an irresistible argument against the identity of the theoretic Neptune with the Neptune of observation? No, that is false.

"Let us use figures again.

"According to M. Struve the mass deduced from the satellite is 65-100 of the mass which I had predicted. But I will agree, if it be insisted on, to take it at 52-100, a point which can only be reached by choosing from the different results obtained those which lead to the greatest disagreements. I declare that if any one is to be abused for this reduction, which corresponds to a variation of only one-fifth in the diameter of Neptune, it can only be by dissembling difficulties of the same kind, which have been presented in the masses of the other planets.

"The mass of Uranus has also been determined by two methods; by the action which this planet produces on Saturn, and by the consideration of its satellites. Well, the second of the values thus deduced is only 75-100 of the other. Nevertheless, in arriving at these results direct observations of Uranus of forty years were discussed and disposed of, while I had not one single observation of Neptune. In the one case, all required to be found from the perturbation which Saturn suffers from Uranus was the mass of the latter, while from the perturbation which Neptune produces upon Uranus I have been obliged to deduce the direction, the distance, and the mass of the planet. Might we suppose that there are two planets Uranus? This should be the conclusion to be logical. Therefore, on the whole, the direction, the distance from the sun, and the mass of Neptune, that is to say, the only three determinations which we had a right to demand from the premises, are exact, according to my theory, beyond all hope. The Neptune which they have found, as well as that for which I searched, accounts perfectly for the perturbations of Uranus. This great accusation, then, which has made so much noise, falls back to the nothing from which it should never have arisen.

"And here I might conclude; but I will proceed a little further, to show how the public is abused by having mirrored to their eyes errors that are pretended enormous and unheard of.

"Around the principal star, called Vamma, of the constellation of the Virgin, and under the influence of its action, there revolves another star to which observations made between 1718 and 1835, embracing an interval of one hundred and seventeen years, had assigned a certain elliptical orbit. Ten years of more recent observations have sufficed to make us abandon entirely this first ellipse, and replace it by one whose surface is about one-fifth that of the first one. Will it be said that the star which had been observed before 1835 is not the same one observed since that epoch? The two ellipses were, beside, both assigned by the same illustrious astronomer, Sir John Herschel. I do not know that they have ever, in his own country, reproached him with deducing from his observations other results than those which they contained. And among comets there is one such that its course may be represented indifferently either by a parabola or an ellipse whose planes shall be inclined to each other more than sixty degrees.

"All the world has heard of the magnificent labor by which Bessel has determined the distance of a star in the Swan from the earth. Bessel also further determined the error which might be expected in the result thus obtained. Reduce this uncertainty into leagues and you will only render ridiculous a work which has been the admiration of the world. The uncertainty then becomes 1,000,000,000,000; that is to say, a trilliard of lieues de poste.

"I shall conclude by considering the distance of the sun from the earth, the distance whose determination has cost astronomers so many labors, so many voyages, and dangers extending almost to martyrdoms.

"We may, to obtain this distance, proceed in two ways; by observations of Mars, or by the transits of Venus over the sun. The first method is less precise than the second, but it has the advantage that it may be repeated as often as we please while the other can be used only twice in about one hundred and twenty years.

"Mars had been first employed, about 1750, by Lacaille and other astronomers of immense merit, and they never, by this method, found more than 32,271,000 leagues for the distance between the earth and sun: and the agreement of these results, obtained by repeated measures, made them consider this number as perfectly certain; but when at a later date, in 1769, the transit of Venus occurred, they found by this passage 38,416,000 leagues for the distance from the earth to the sun. The difference of these two results (6,145,000 leagues) is, in simple terms, the *fifth* part of the first number. I will add that this difficulty is not now completely solved. I never had a difference like this.

"Should we not, then, to be consistent, admit that there are two suns, (since we must have two Neptunes,) the sun of Mars and the sun of Venus. We have seen but one, and the brilliant discovery of the second remains yet to be made. I do not doubt that by means of the sun already known, and with the succor of the theoretic one, the old system will extend itself, and that in a short time we shall be able to establish the existence of a supplemental body of the same description.

"But all this history is of a kind to excite sad reflections. Moestlinus, the master of Kepler, might regard it as a duty to dissuade astronomers from occupying themselves with the theory of Mercury, if they did not wish to lose their repose. Alas! why was it that Moestlinus did not give us the same advice concerning searching for planets?"

*The "Comptes Rendus" do not admit of plates. My charts are engraved, and shall appear soon, in connexion with a more complete publication which I shall make on this subject.

TO THE EDITORS.

Messrs. Editors: I enclose you a curious calculation and prediction, cut out of the Alexandria Gazette some four years ago. In my opinion, when the 4th of March occurs on Sunday, the inauguration should take place on Saturday, and not on Monday.

W.

THE FOURTH OF MARCH.

Rule for determining on what day of the week the fourth of March occurs.

Divide the year by 4, neglecting the remainder, and add the quotient to the year; divide this sum by 7, and the remainder will indicate the required day, counting the Sabbath 1, Monday 2, &c. If there be no remainder the day is Saturday.

Example: Required the day of the week on which the 4th of March fell in 1845?

Solution: 1845 divided by 4, gives 461, which, added to 1845, gives 2,306; now divide this by 7, and we have 329, with the remainder 3; the required day was therefore Tuesday. This rule is good for any year, from 1800 to 1900; thus in 1802 it fell on Thursday, in 1870 it will fall on Friday, &c.

Problem: Required the day of the week on which the Fourth of March will fall at the inauguration of the next Whig President?

Answer. Sunday.

C. S. H.

THE HAPPY WARRIOR.

FOR THE NATIONAL INTELLIGENCER.

Messrs. Editors: Are not the following passages from Wordsworth's finely drawn "*Character of the Happy Warrior,*" admirably descriptive of one who has recently become "a conspicuous object in the nation's eye?"

If you see the likeness as I do, I fancy you will not think them out of place in the columns of the Intelligencer. The well-known features of the person alluded to, and whom it is unnecessary to name, have become dear to his countrymen, and they love to see them upon the canvass.

P.

Who is the happy warrior? Who is he
That every man in arms should wish to be?
It is the generous spirit, who, when brought
Among the tasks of real life, hath wrought
Upon the plan that pleased his childish thought:
Whose high endeavors are an inward light
That makes the path before him always bright:

* * * * * * *

Who, doomed to go in company with Pain,
And Fear, and Bloodshed, miserable train!
Turns his necessity to glorious gain;
In face of these doth exercise a power
Which is our human nature's highest dower;
Controls them, and subdues, transmutes, bereaves
Of their bad influence, and their good receives;
By objects which might force the soul to abate
Her feeling, rendered more compassionate;
Is placable—because occasions rise
So often that demand such sacrifice:

* * * * * * *

Who, if he rise to station of command,
Rises by open means; and there will stand
On honorable terms, or else retire,
And in himself possess his own desire:
Who comprehends his trust, and to the same
Keeps faithful with a singleness of aim;
And therefore does not stoop, nor lie in wait
For wealth, or honors, or for worldly state;
Whom they must follow; on whose head must fall
Like showers of manna, if they come at all:
Whose powers shed round him in the common strife,
Or mild concerns of ordinary life
A constant influence, a peculiar grace;
But who, if he be called upon to face
Some awful moment to which Heaven has joined
Great issues, good or bad for human kind,
Is happy as a lover, and attired
With sudden greatness like a man inspired;
And, through the heat of conflict, keeps the law
In calmness made, and sees what he foresaw;
Or, if an unexpected call succeed,
Come when it will, is equal to the need:
He who, though thus endued, as with a sense
And faculty for storm and turbulence,
Is yet a soul whose master-bias leans
To homefelt pleasures and to gentle scenes;
Sweet images! which, wheresoe'er he be,
Are at his head; and such fidelity
It is his darling passion to approve;
More brave for this, that he hath much to love:
'Tis, finally, the man, who, lifted high,
Conspicuous object in a nation's eye,
Or, left unthought of in obscurity,
Who, with a toward or untoward lot,
Prosperous or adverse, to his wish or not—
Plays, in the many games of life, that one
Where what he most doth value *must* be won:

* * * * * * *

Who, whether praise of him must walk the earth
For ever, and to noble deeds give birth,
Or he be called to sleep without his fame,
And leave a dead, unprofitable name—
Finds comfort in himself and in his cause;
And, while the mortal mist is gathering, draws
His breath in confidence of Heaven's applause:
This is the happy Warrior; this is he
Whom every man in arms should wish to be.

The Boston papers announced, on Thursday, that Colonel Bliss, the private secretary of Gen. Taylor, had arrived in that city and taken lodgings at the Marlboro' Hotel. The announcement originated from the fact that a person entered his name on the registry book of the hotel as "W. S. Bliss, U. S. Army;" and in conversation with the inmates of the house and gentlemen who called in to pay their compliments to a supposed distinguished stranger, passed himself off as Lieut. Col. Bliss, the Aid and Private Secretary of Gen. Taylor, and spoke knowingly of the operations of the army on the line of the Rio Grande. Among others Capt. D. D. Baker, of the Marine Corps, attached to the "Constitution," was completely deceived by his appearance and pretensions. In fact the impostor received even an invitation to visit the "Constitution;" but Captain Baker made inquiries, and at length became satisfied that he was not the true Simon Pure. He denounced him as a rascal and impostor, to which terms the gentleman made no reply and turned away. This individual turns out to be W. S. Bliss, who is well known in Boston as the "*nice young man,*" and who has received some professional attentions from the Municipal Court.

COMMUNICATED FOR THE NATIONAL INTELLIGENCER.

The French Minister's Visit to the New York Historical Society.

The new French Minister, M. Poussin, visited the rooms of the New York Historical Society, during their stated meeting on Tuesday evening, the 7th instant. He was introduced to the Society by the Hon. Luther Bradish, presiding, in the following terms:

Gentlemen of the Society: It is with peculiar pleasure that I announce to you that the Society is this evening honored by the presence of his Excellency Major Poussin, the first Minister sent from the French Republic to the Republic of the United States. In our distinguished visiter, on this occasion, we have not only the highly accomplished and worthy representative of his own country, but in him we may also claim a fellow-citizen; for it will be recollected by the members of this Society that Major Poussin was for many years in the service of the United States, in intimate association with our own excellent and deeply loved General Bernard. During this long period of distinguished and faithful service in our country he became minutely acquainted with our interests and our institutions, and evinced on all occasions a marked friendliness for the former, as he did a deep and cordial sympathy with the latter. His return to us, therefore, under present circumstances, is peculiarly gratifying to our personal feelings, while his appointment and arrival as the first Minister from the young French Republic to our country, constitutes an historical fact as full of present interest as it is of future hope. In it we see a sure pledge of the cordial and ever-brightening relations between the two great republics.

But I may not enlarge. I have, therefore, now the honor of presenting to the Society Major Poussin; and I ask you, gentlemen, to rise and unite with me, as I know you will most cordially, in welcoming among us this distinguished representative of his own country, and our own cherished fellow-citizen.

To this M. Poussin made a feeling response, and then addressed the Society as follows:

Gentlemen: I am happy in meeting, in the city of Jay, and Hamilton, and Morris, a society so distinguished, and presided over by one of the most illustrious of those men who by birth were countrymen of mine, and for their love of liberty are countrymen of yours; I mean the great Gallatin, who came here in youth to assist your fathers, and with them was *born again* into the glorious nationality which is the admiration and hope of the world. And it is a pleasure to be surrounded by a society of freemen, organized chiefly for the purpose of preserving all the facts that relate to the birth and nurture of Liberty, and her noble children—the institutions of the American Republic. Your labors in this respect command the interest and good wishes of mankind.

Gentlemen: I rejoice at finding myself once more in the midst of this great community, whose high privilege it is to give to the world the most satisfactory evidences of the practicability of a large nation governing itself! Yes, gentlemen, the incontestable and incontested merit of your Democratic institutions, the proof of their admirable influence on society at large, as on the individuality, is that they are founded on the equal diffusion of knowledge throughout all ranks, commercial, agricultural, or manufacturing, mechanical or operative classes. That is the true touchstone of your Democratic fabric; and you should be proud of it!

I contest the saying of certain writers, who are sanguine in ascribing to the privileges of your favored land, or to the one origin of your race, or to the peculiar structure of your nerves or muscles, your successful and prosperous march as a nation under the glorious banner of Liberty. All these exterior elements are the invention of our numerous enemies, who watch with some apprehension for their long-enjoyed privileges, the ascendant march of Democratic principles throughout the world. I reject them all as unfounded in truth, and because they have for their object to discourage the human race of making lawful efforts to raise itself in scale of self-estimation and dignity!

God, gentlemen, has not made liberty for one set of people, for a class of men! All men have been created and are born to be free, and to enjoy equal rights all over the world.

Your *favored land*, they say! Surely, most assuredly, may they say *favored*; but not more so, permit me to say, in the point of fruitfulness or adaptation to all the arts, and to satisfy all wants of men, than any other part of the two great Continents. Look at your own door; Mexico or Central America; further South, the rich basin of the Amazon, or the Oronoco! Cast your eyes on that all-beautiful spot of Europe, occupied by my glorious country, and inhabited by my laborious and spirited countrymen; cross the Pyrenees or the Alps, range down the valley of the Guadalquiver, of the Rhine, or of the Po, and tell me whether the Almighty has been more bountiful to the one people than to the other?

Do not let us mingle the name of God in the repartition of goods here below, solely depending upon the WILL of the people!

The *origin* of your race? but how does it differ from any other? Do I not see among the thirty brilliant stars of your constellation whole territories settled by men of as great diversity of origin as old Europe can present? Do I not read the daily proofs of it in the special organs entrusted with their local or personal interests: German, French, Spanish, Italian, Scandinavian, or English newspapers? And, in fine, if I turn the leaves of your history, do I not find in all those glorious records, names classed with that of the model of men, "the great Washington," and which my national and official character will not allow me to recall here. Your *nerves* and *muscles?* Since when, then, will this new distinction be started by stolid minds which are always devising a reason, false or true, for what they cannot comprehend? Indeed, this is the last blow aimed at classing people—those who can be free and those who cannot! Why not say at once: among privileged ones who will not work and those doomed to work?

My nature, gentlemen, revolts at this extreme of self infatuation; and I must say that I can, on no occasion, tolerate the idea of the mensuration of man's capacity to this or that avocation by the actual development of his nerves and muscles.

Now, gentlemen, permit me to touch a subject of vital importance in the present circumstances, in which the whole world is carried on by the example of my noble country: and to arrive at my end, allow me to retrace, in very few words, the influence which the Press rightly exercises in your own country.

In your happy social organization, where those who cannot read or write form a very small minority, the newspapers have become the ordinary channel of all free discussion, referred to by every one, and supported by all.

It is not given to one paper or to some papers only to lead the opinion; it is the opinion of the people that gives life, on the contrary, to such or such a paper; but as every one can express his opinion, it follows that on all great questions the writers or editors of papers form instinctively a kind of great congress or meeting charged with discussing its merit or demerit, and thus prepare the concentrated action of the great fractional portion of the community on the interested point at stake.

This is, gentlemen, we must acknowledge, a great privilege enjoyed by the press in this enlightened society, and which must tend to give it more and more a high and dignified character if it will respond to its great responsibility.

The more enlightened a society is the more important it is for the conductors of the press to be dignified by intelligence as by personal character; and I am proud to say, gentlemen, such is the tendency of all public organs in the United States.

They are all aware that if your system of *Common Schools*, or general education is the great basis in which rest your Democratic institutions, it is likewise on the great trading principles and the co-existence of a free and enlightened press that your astonishing prosperity rests!

Now, then, gentlemen, for the point, the most at my heart, and I am sure at yours:

If the press exercises such an influence on your great and prosperous community as I have very imperfectly suggested, of how much more importance cannot it be to the success of our great cause by becoming for our uncertain steps in the path of rational liberty in Europe, our true beacon, a guide, a cheering star?

The labor of the press in this happy land of yours is almost accomplished; you have but to keep up the sacred fire where elements abound: but on my side of the water, on our great Eastern Continent, every thing is to be achieved.

How is that to be accomplished? By attacks, by threats, by declamations for or against this or that form? No, gentlemen; nothing is to be gained by levelling daily attacks against men or measures indiscriminately, except to excite passions, hatred, or prejudices.

A higher order of assistance, indeed of brotherly duty, is devolved on you; I allude to the actual moral and practical aid that the American press can give us in the transformation now going on of Monarchical into Democratic institutions.

It is by countenancing our daily efforts, in presenting our people with the more parallel features of your own history with our present struggling state, that you can advance the area of rational general Liberty, and not by assaulting and rending yourself—the distant echoes of prejudiced minds or of preconcerted enemies to the new institutions.

It is by allowing largely for the immense difficulties which cross yet our path, and cheering our partial success in overthrowing them or turning them round, that you can impart new abilities to our men, to our society!

We cannot dissimulate a fact: "The light which now strikes old Europe as a solar ray comes from the West." That light has already produced a first and marvellous effect; every body has measured by it the shadow of his neighbor on the land of his birth, and has not seen any difference in the projection! Continue then to keep the intensity of your light, and I am certain our people will succeed in reading the pages of the great Book of Truth in the same light as you.

A Veteran Dead.—We learn from the Washington (Pa.) Examiner of the death of Mr. William Adams, a soldier of the revolution, at the good old age of one hundred years. Mr. Adams served during the whole war, and was attached to the "Flying Camp," so termed.